

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

FORUM US, INC.

Plaintiff,

v.

ODESSA SEPARATOR, INC.

Defendant.

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CIVIL ACTION NO. 6:20-cv-00150-ADA

JURY TRIAL DEMANDED

**PLAINTIFF FORUM US, INC.'S
OPENING CLAIM CONSTRUCTION BRIEF**

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Forum’s Revolutionary and Patented SandGuard™ Technology	2
A.	The Problem: Sand Plugging.....	2
B.	The Solution: The Patents.....	4
1.	Overview of Structure	4
2.	Overview of Operation.....	6
III.	Litigation History of the Patents.....	8
A.	The 2016 Patent Suit	8
B.	The 2018 Patent Suit	8
IV.	Arguments and Authority.....	9
A.	first flow path / second flow path (All Patents, <i>passim</i>).....	9
B.	[first/second] flow path between the upper opening and the lower opening in the body (‘435 Patent, Cl. 1; ‘151 Patent, Cls. 1, 24).....	12
C.	[first /second] flow region (‘152 Patent, Cl. 25; ‘571 Patent, Cls. 27, 45, 50, 52)	14
D.	flow diverter (All Patents, <i>passim</i>).....	16
E.	a flow diverter arranged to direct downward flow through the body towards the second flow path and away from the first flow path (‘435 Patent, Cl. 1).....	19
F.	diverting / divert / been diverted (‘151 Patent, Cls. 34, 37; ‘152 Patent, Cl. 29).....	20
G.	directing downward flow of fluid and/or entrained solids to a second flow path in the body (‘435 Patent, Cl. 18)	22
H.	wall of the tubular (‘571 Patent, Cl. 27) / an inner tubular wall separating the first flow region from the second flow region (‘571 Patent, Cl. 50).....	23
I.	at least one further vent in an upper half of the inner tubular (‘152 Patent, Cl. 29)	24
J.	relieve back pressure (‘152 Patent, Cls. 3, 22).....	25
K.	if fluid cannot flow (‘152 Patent, Cls. 2, 4, 21, 24, 27, 28; ‘571 Patent, Cls. 2, 4, 15, 17).....	26
L.	the filter comprises one or more vents (‘151 Patent, Cl. 25)	27
M.	the first passageway positioned adjacent a first end of the wall and the second passageway positioned adjacent an end opposite of the first end (‘571 Patent, Cls. 4, 17).....	29
V.	Conclusion	30

TABLE OF AUTHORITIES

Cases

<i>Curtiss-Wright Flow Control Corp. v. Velan, Inc.</i> , 438 F.3d 1374 (Fed. Cir. 2006).....	18, 22
<i>Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.</i> , 672 F.3d 1270 (Fed. Cir. 2012).....	18
<i>DSW, Inc. v. Shoe Pavilion, Inc.</i> , 537 F.3d 1342 (Fed. Cir. 2008).....	21
<i>Epcon Gas Sys. Inc. v. Bauer Compressors, Inc.</i> , 279 F.3d 1022 (Fed. Cir. 2020).....	21
<i>Forum US, Inc. v. Progevity Oilfield Systems, LLC</i> , No. 4:18-cv-4094, Dkt. 1 (S.D. Tex. 2018)	9
<i>IPXL Holdings, L.L.C. v. Amazon.com, Inc.</i> , 430 F.3d 1377 (Fed. Cir. 2005).....	22
<i>K-2 Corp. v. Salomon S.A.</i> , 191 F.3d 1356 (Fed. Cir. 1999).....	10
<i>Multilift Wellbore Tech. v. ESP Completion Techs., LLC</i> , No. H-17-2611, 2018 U.S. Dist. LEXIS 25630, 2018 WL 925062 (S.D. Tex. Feb. 16, 2018)	8
<i>Phil-Insul Corp. v. Airlite Plastics Co.</i> , 854 F.3d 1344 (Fed. Cir. 2017).....	16
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005).....	21
<i>Polycom, Inc. v. Codian Ltd.</i> , 2007 U.S. Dist. LEXIS 97892 (E.D. Tex. Oct. 19, 2007)	21
<i>Retractable Techs., Inc. v. Becton, Dickinson & Co.</i> , 653 F.3d 1296 (Fed. Cir. 2011).....	11
<i>Superguide Corp. v. DirecTV Enterprises, Inc.</i> , 358 F.3d 870 (Fed. Cir. 2004).....	21
<i>United States Surgical Corp. v. Ethicon, Inc.</i> , 103 F.3d 1554 (Fed. Cir. 1997).....	10

<i>Vitronics Corp. v. Conceptiontronic Inc.,</i> 90 F.3d 1576 (Fed. Cir. 1996).....	14
<i>Woodrow Woods & Marine Exhaust Sys., Inc. v. Deangelo Marine Exhaust, Inc.,</i> 692 F.3d 1272 (Fed. Cir. 2012).....	21

EXHIBIT LIST

No.	Description
1	U.S. Patent No. 9,441,435 (“the ’435 patent”)
2	U.S. Patent No. 10,132,151 (“the ’151 patent”)
3	U.S. Patent No. 10,132,152 (“the ’152 patent”)
4	U.S. Patent No. 10,584,571 (“the ’571 patent”)
5	<i>Jet Pumps Improve Bakken Shale Economics</i> , Hart Energy (July 1, 2017)
6	Memorandum and Opinion; <i>Multilift Wellbore Tech. v. ESP Completion Techs.</i> , LLC, No. H-17-2611, 2018 U.S. Dist. LEXIS 25630, 2018 WL 925062 (S.D. Tex. Feb. 16, 2018)
7	Final Injunction, <i>Forum US, Inc. v. Progevity Oilfield Systems, LLC</i> , No. 4:18-cv-4094, Dkt. 16 (S.D. Tex. January 7, 2019).
8	Dictionary Definitions for “path”
9	Dictionary Definitions for “between”
10	Dictionary Definitions for “flow region”
11	Excerpts from Transcript for Deposition of Dr. Gary Wooley, taken on May 18, 2017 (“Wooley Depo”)
12	Excerpts from Transcript for Motion Hearing Held on July 24, 2017 before the Honorable Roy S. Payne, United States Magistrate Judge (“Hearing Tr.”)
13	U.S. Patent No. 6,056,053
14	U.S. Patent Publication No. 2011/0024119
15	U.S. Patent No. 8,997,870
16	Odessa Separator, Inc.'s First Revised Extrinsic Evidence
17	Dictionary Definitions for “divert”
18	Dictionary Definitions for “directing”
19	Dictionary Definitions for “wall”
20	Dictionary Definitions for “solid”
21	Dictionary Definitions for “mechanical”
22	Dictionary Definitions for “backpressure”
23	Dictionary Definitions for “vent”
24	Dictionary Definitions for “filter”
25	Dictionary Definitions for “adjacent”
26	Dictionary Definitions for “adjoining”

I. Introduction

The Patents¹ are directed toward a revolutionary oil and gas technology that solves the decades old problem of sand plugging a downhole pump after pump shutdown and causing the pump to fail. This technology saves oil and gas companies hundreds of thousands of dollars in remedial costs for each failed pump. Forum's SandGuard™ product encompasses this patented technology and has made Forum a leader in sand protection technology. Imitation may be the greatest form of flattery, but the Defendant is the third company in less than three years to copy this technology. The first infringer was forced to stop selling its copied tool after Judge Rosenthal issued a claim construction ruling that foreclosed several (unreasonable) noninfringement positions. The second infringer was permanently enjoined by Judge Hughes.

Defendant is following a familiar but failed playbook, including embracing some of the same claim construction positions rejected by Judge Rosenthal. Defendant proposes 16 claim constructions. These proposals attempt to narrowly rewrite the plain claim language or rely on supposed "indefiniteness" in an effort to create non-infringement positions. However, all the disputed terms and phrases have plain and ordinary meanings that are evident to one of ordinary skill in the art. Nearly all consist of remarkably common words (e.g., "flow path") that the jury will easily understand. For these reasons, Forum has proposed constructions that do not alter the plain and ordinary meaning, but instead offer additional words to reinforce those meanings and preclude Defendant from offering conflicting and incorrect meanings to the jury.

¹ Collectively, U.S. Patents 9,441,435 (Ex. 1); 10,132,151 (Ex. 2); 10,132,152 (Ex. 3); and 10,584,571 (Ex. 4).

II. Forum's Revolutionary and Patented SandGuard™ Technology²

With the increased use of sand in fracking operations and the production of oil in sandy formations, there is a greater amount of entrained sand in fluids pumped from wells. This creates a variety of problems for well operators, including the problem of sand plugging the well and damaging the pump upon pump shutdown and restart. The tool described in the Patents³ is the best way to deal with this problem. This patented technology is embodied in Forum's SandGuard™ product, which has been wildly successful since market entry several years ago.

A. The Problem: Sand Plugging

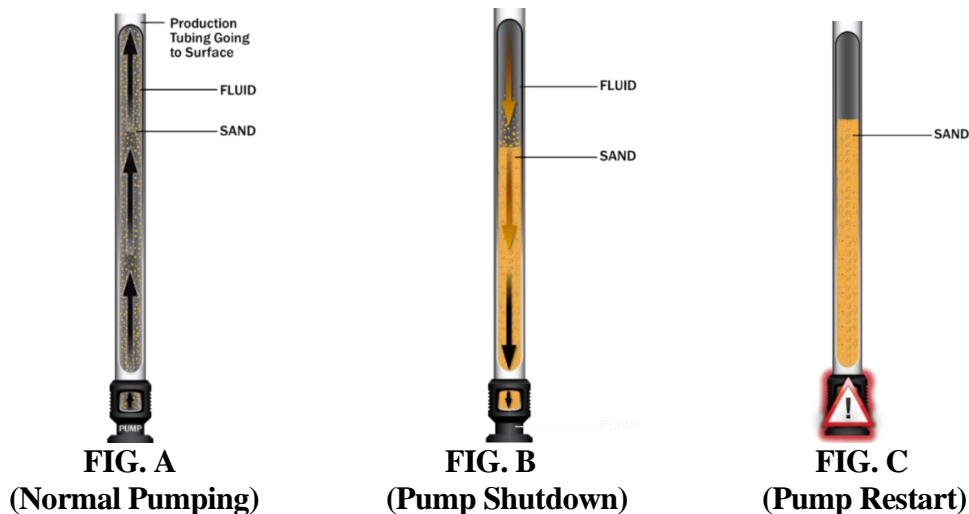
The problem of sand plugging often occurs in the context of shale wells, which are typically drilled between 6,000 and 10,000 feet deep. Shale wells are primary candidates for multi-zone fracking, which involves injecting a “fracking fluid” into multiple sections of an oil well to create cracks or fractures in the formation. The fracking fluids contain a significant amount of sand and other solid particles called “proppant.” The proppant quite literally “props” the formation cracks open and makes it easier for the production fluid to escape the formation. While proppant is necessary for any shale well, it can create major production problems downhole.

To get the production fluid out of the well, a downhole pump called an electrical submersible pump (“ESP”) is commonly used. The pump is located up to 10,000 vertical feet (or nearly 2 miles) deep in the production tubing of a well. As shown in **Figure A** below, during normal operation the pump is able to generate a significant amount of pressure to drive production fluid (including entrained

² Forum will be submitting an animated technology to the Court, which Forum believes will aid considerably in understanding the patented technology and which further complements the explanation below.

³ The '435 Patent was the first Patent-in-Suit to issue. The remaining Patents are direct or indirect continuations of the '435 Patent, so the Patents have identical substantive disclosures. For purposes of this brief, citation is only made to the specification of the '151 Patent, but it should be appreciated that identical disclosures are found in the specification of the other Patents as well.

sand) out of a well. In a perfect world, the pump would never shut down and continuously produce fluid until the well runs dry. In the real world, a pump will necessarily shut down for any number of reasons, such as power failures and required maintenance.



Turning to **Figure B**, when the pump shuts down the miles' worth of fluid and entrained sand above the pump begins to flow downwardly by gravity towards the pump until the fluid level equalizes.⁴ The sand in the static (or non-flowing) fluid will continue to flow downward by gravity through the stationary column of fluid until it settles on top of the ESP and forms a plug.

As shown in **Figure C**, when the pump restarts, it must clear the sand plug before it can produce any fluid. However, the sand plug substantially or entirely restricts the ability of fluid to flow through the production tubing, which creates enormous back pressure on the pump. This results in the pump enduring significant strain when trying to push the plug upward. Additionally, because the pump is plugged internally with sand, the attempted restart will cause significant grinding and erosional wear to the internal pump components. These conditions will either greatly reduce the pump's lifespan or cause the pump to fail entirely. When one pump fails, the expense can be enormous and, in some cases,

⁴ "Equalization" refers to the point where the fluid in the production tubing has finished falling by gravity and is fully at rest.

results in over \$300,000 in remedial costs. Ex. 5 at 2.

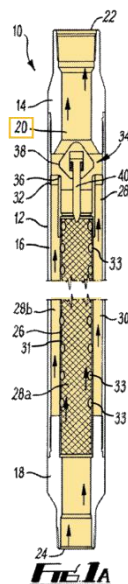
The Patents describe this problem and explain that pump shutdown can cause the pump to become plugged with sand, ultimately resulting in destruction of the pump itself. Ex. 2 at 1:30-55. Replacing the pump “is an expensive and time-consuming operation.” *Id.* at 1:55-56.

B. The Solution: The Patents

The Patents disclose downhole tools for directing downward flowing solids particles (e.g., frac sand) away from a pump and self-cleaning the solids upon pump restart. This ingenious solution ensures that solids cannot plug the pump, while allowing for an unlimited number of pump shutdowns *vis-à-vis* the self-cleaning ability of the tool. One example of such a tool is shown in Figures 1A to 1C, which depict the three different stages of operation.

1. Overview of Structure

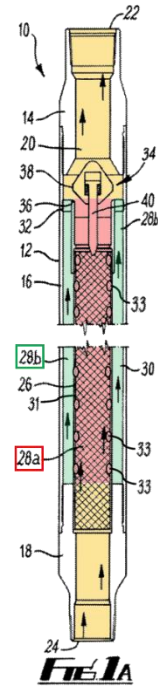
As the specification explains, the body 12 “defines a throughbore 20 between an upper opening 22 and a lower opening 24.” *Id.* at 5:53-54. In other words, all of the space from the lower opening 24 to the upper opening 22 is referred to as the **throughbore 20** as shown on the right. *Id.* at 6:23-25 (“[F]luids ... flow upwards through the throughbore (as depicted by the arrows), entering the lower opening 24 and leaving the upper opening 22.”).⁵ This space collectively provides a bore in the apparatus through which the upward and downward flowing fluids and entrained solids may flow. The throughbore is divided into structural flow regions or flow paths as discussed below.



In reference to a further annotated version of Figure 1A (right below), the specification explains that: “The inner tubular 26 divides the **throughbore 20** into a **first flow region 28a** on the inside of

⁵ Colored text corresponding to the color annotations to Figures 1A to 1C have been provided to help identify the relevant structures in the tool.

the tubular and a **second flow region 28b** in an annular space 30 between the inner wall of the housing 16 and the inner tubular 26.” *Id.* at 6:2-5. The specification also refers to element 28a as a “**first flow path**” and element 28b as a “**second flow path**.” Ex. 1 at Abstract (“First (28a) and second (28b) flow paths are provided....”); *Id.* at 10:11-16 (“first flow path 28a and the second flow path 28b”). In other words, element 28a refers to both a first flow [region / path] and element 28b refers to both a second flow [region / path]. Thus, the lower throughbore leads into the inner tube 26, which divides the throughbore into a first flow [region / path] 28a and second flow [region / path] 28b, both of which end when they meet the upper throughbore.



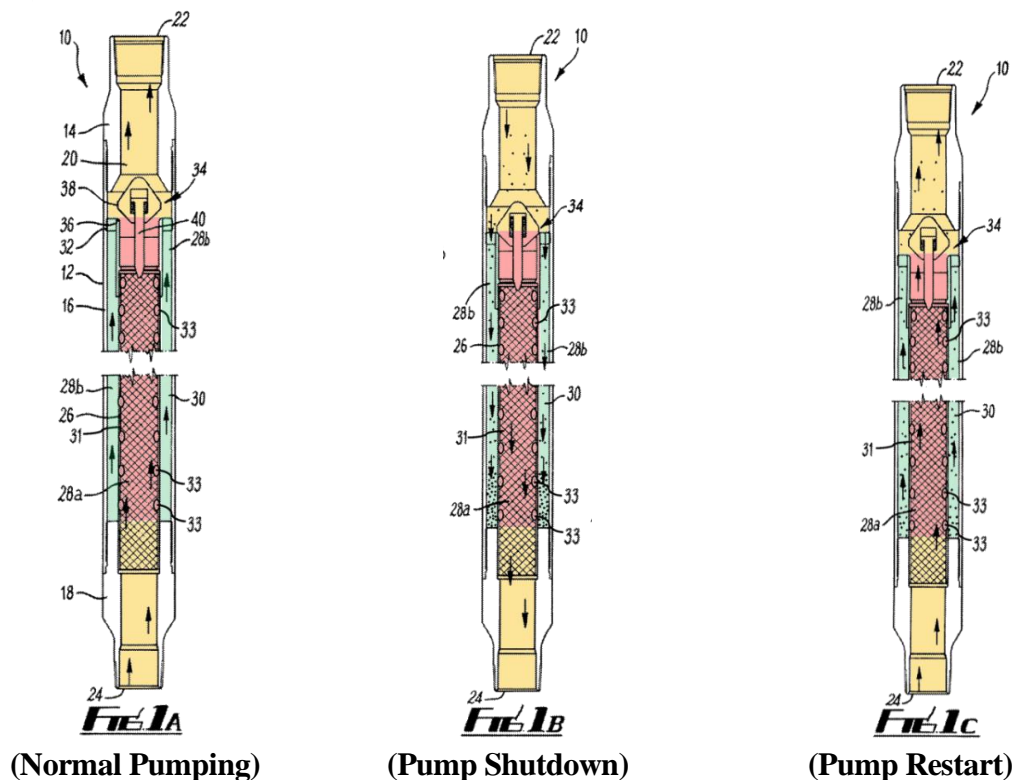
The inner tubular 26 has vents 33,⁶ which allow for direct fluid communication between the first flow [region / path] 28a and second flow [region / path] 28b. Ex. 2 at 6:55-67. A mesh filter 31 over the vents 33 is optional (*Id.* at 6:8-11), as the Patents teach that the vents 33 alone may filter sand by virtue of their “shape and/or size.” *Id.* at 3:31-33. The top of the inner tubular 26 also has a flow diverter in the form of a valve 34, which has a valve member 38 that opens and closes the valve to obstruct downward flow into the first flow [region / path]. *Id.* at 6:12-17. While the flow diverter 34 in this embodiment includes a valve, the patent teaches that the use of a flow diverter in the form of a valve is merely optional. *Id.* at 2:66. (“*Preferably*, the flow diverter comprises a valve.”). Clearly, other types of flow diverters known in the art are envisioned.

⁶ In the ‘435 Patent, Figures 1A to 1C do not illustrate vents in the inner tubular 26, even though those vents are discussed in detail in the specification. *See e.g.*, Ex. 1 at 1:4-5 (“The first and second flow paths may be in fluid communication via *one or more vents*.”); 6:9-12 (“The inner tubular 26 is *vented* such that the first flow region 28a and the second flow region 28b are in fluid communication.”); 6:33-35 (“The fluids also enter the second flow region 28b through *vents* in the inner tubular 26...”). The vents 33 were included in Figure 1 via an amendment during prosecution of the ‘151 Patent, and they are depicted in Figure 1 of the ‘152 and ‘571 Patents as well. These vent depictions 33 are clearly not “new matter” as Defendant alleges, because they are fully supported by the specification of the ‘435 Patent. Indeed, the Examiner did not object to this amendment, even though this particular amendment to Figure 1 was explicitly pointed out.

2. Overview of Operation

The disclosed embodiments refer to three modes of operation in reference to Figures 1A to 1C.

Turning first to Figure 1A, the downhole apparatus 10 is placed above a pump (not shown).



When the ESP is pumping during normal operations, the upward flow of fluid and solid particles enters the lower throughbore via lower opening 24. *Id.* at 6:21-40. The upward flow continues until it reaches the first flow [region / path] 28a. *Id.* Some of the flow will then split from the first flow [region / path] 28a and enter the second flow [region / path] 28b via the vents 33. *Id.* In other words, upward flow in the first flow [region / path] 28a induces or causes upward flow in the second flow [region / path] 28b. This split (or induced) flow continues moving up the remaining length of the second flow [region / path] 28b until it reaches the upper throughbore and then exits the tool via upper opening 22. *Id.* Some of the flow entering the bottom of the first flow [region / path] 28a will not split, but instead will flow through the entire first flow [region / path] 28a and cause the flow diverter valve 34 to open so that

fluid can escape out of the top of the inner tube and reach the upper throughbore. *Id.* Thus, the upward flow from the lower throughbore splits into a first flow [region / path] 28a and second flow [region / path] 28b and then rejoins at the upper throughbore, where it exits out the upper opening (22).

In reference to Figure 1B, once the ESP shuts down the upward flow stops. *Id.* at 6:41-65. This allows the diverter valve 34 to close by gravity, preventing any downward flow from entering the first flow [region / path] 28a through the valve seat 36. *Id.* Fluid and solid particles above the tool 10 continue to flow downwardly by gravity until they enter the upper throughbore via upper opening 22. *Id.* This downward flow is then diverted away from the first flow [region / path] 28a and into the second flow [region / path] 28b by the diverter valve 34. *Id.* As the diverted solid particles continue flowing downward with the fluid or by gravity, the filter (*e.g.*, mesh 31 and/or vents 33 that are sized/shaped to filter) limit the passage of sand from the second flow [region / path] 28b into the first flow [region / path] 28a. *Id.* The filtered solids then collect in the second flow [region / path] 28b, which acts as a container for collecting solid particles until the pump restarts. *Id.*

Turning now to Figure 1C, once the pump is restarted the upward flow begins again. *Id.* at 6:66-7:17. The upward flow enters the lower throughbore via lower opening 24 and then travels to the first flow [region / path] 28a. *Id.* Some of the flow will split into the second flow [region / path] 28b from the first flow [region / path] 28a via the vents 33 in the inner tubular wall. *Id.* This induced flow progressively carries the collected or filtered solid particles from the second flow [region / path] 28a to the upper throughbore and out the upper opening 22. *Id.* This is what the patent refers to as the innovative “self-cleaning” or “washing” feature, which allows the tool to fully clear or wash out all collected sand so that the tool can be used for unlimited pump shutdown/restart cycles. *Id.* at 4:41-46; 7:16-17. Some of the upward flow entering the first flow [region / path] 28a will also travel the length of the entire first flow [region / path] 28a until it reaches the flow diverter valve 34. *Id.* at 6:66-7:17.

The pressure exerted on the valve 34 by the flow causes the valve member 38 to lift off the seat valve seat 36, allowing the flow to exit out the top of the first flow [region / path] 28a. *Id.*

The Patents further explain a novel aspect of the tool, namely the ability to relieve back pressure created by sand plugs. *Id.* at 7:3-7, 23-24. Unlike conventional sand plugging situations, the placement of the openings in the inner tubular (e.g., the vents 33 and the opening in the flow diverter) allows fluid to escape through the upper portion of the first flow [region / path] 28a even when solids are collected high in the second flow [region / path] 28b. Thus, even though the collected solids in the second flow [region / path] 28b partially restrict flow through the tool by blocking lower vents 33 in the inner tubular 26, the pressure caused by this restriction is reduced (or relieved) because first flow [region / path] 28a provides an alternative route for fluid flow to the upper tubular vents 33 and flow diverter 34 located above the vents blocked by solids.

III. Litigation History of the Patents

A. The 2016 Patent Suit

In late 2016, the ‘435 Patent was asserted against ESP Completion Technologies, LLC (“ESPCT”) by Multilift Wellbore Technology, which was acquired by the parent company of Forum during the litigation. At the time, the ‘435 Patent was the only Patent-in-Suit that had issued. Judge Rosenthal of the Houston Division of the Southern District of Texas presided over that case.

In February 2018, Judge Rosenthal issued a claim construction ruling construing the then-disputed terms, including several terms in dispute in this case (e.g., *flow diverter*). *See Multilift Wellbore Tech. v. ESP Completion Techs., LLC*, No. H-17-2611, 2018 U.S. Dist. LEXIS 25630, 2018 WL 925062 (S.D. Tex. Feb. 16, 2018). Shortly after that ruling issued, an agreed motion to dismiss was entered. For the convenience of the Court, a copy of Judge Rosenthal’s opinion is attached as Exhibit 6.

B. The 2018 Patent Suit

In late 2018, Forum asserted the ‘435 Patent against Progevity Oilfield Systems, LLC (“Progevity”). *See Forum US, Inc. v. Progevity Oilfield Systems, LLC*, No. 4:18-cv-4094, Dkt. 1 (S.D. Tex. 2018). At the time, the ‘435 Patent was still the only Patent-in-Suit that had issued. The same day the complaint was filed Forum moved for a preliminary injunction and Progevity immediately shut down its website, vanishing without a trace. *Id.* at Dkt. 12. Judge Hughes of the Southern District of Texas, Houston Division then entered a permanent injunction after Progevity failed to make an appearance. Ex. 7. Thus, there were no claim construction rulings in that case.

IV. Arguments and Authority

A. first flow path / second flow path (All Patents, *passim*)

Forum	Defendant
Plain and ordinary meaning	<i>first flow path</i> : a flow path through the body that passes through the first flow region, but does not pass through the second flow region / <i>second flow path</i> : a flow path that passes through the second flow region

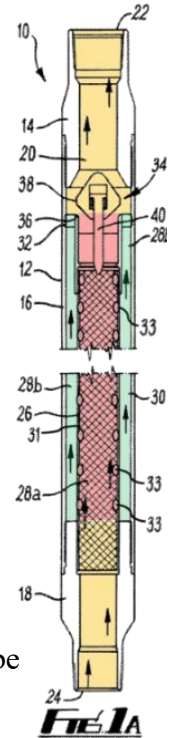
The proposed construction would improperly limit the claims in two key ways. First, it would require the “first flow path” to *completely* extend from the lower opening to the upper opening (by virtue of the language “*through* the body”). Second, it would prevent the first flow path from venting fluid into the second flow path and instead require fluid to exit the very top of the first flow path (by virtue of the language “does *not* pass through the second flow region”). There is no basis for imparting these limitations, or any others (e.g., “flow regions”), into the claims.

The Patents use the term “path” in a manner consistent with common, everyday parlance to refer to a “route.”⁷ Thus, the phrase “first flow path” simply refers to one route for flow and the phrase “second flow path” simply refers to another route for flow. This understanding is also consistent with

⁷ See e.g., Ex. 8 at 1 (defining as “a route or track between one place and another”); Ex. 8 at 12 (defining as “a route, course, or track along which something moves”); Ex. 8 at 20 (defining as “the route or course along which something travels or moves”); Ex. 8 at 28 (showing “route” is a synonym for “path”).

Defendant's proposal for "[first / second] flow path between..." where Defendant uses "route" in place of "path." *Infra* at 12.

The specification uses these terms consistent with this common meaning. The Patents teach in reference to Figure 1 (right) that the inner tubular 26 "divides" the throughbore into elements 28a and 28b. Ex. 1 at 6:7-9. Element 28a is referred to as a "first flow path," which is clearly a flow route inside the inner tubular. *Id.* at Abstract, 10:14. Element 28b is referred to as a "second flow path," which is a different flow route in the space 30 around the inner tubular 26. *Id.* Abstract, 10:13-15. When flow enters the lower throughbore via opening 24, the upward flow splits between the first flow path 28a and second flow path 28a and then rejoins at the upper throughbore and exits the tool via opening 22. Thus, these terms simply refer to two routes for fluid flow. The plain claim language sufficiently captures this meaning. Substituting "route" would be nothing more than an exercise in redundancy. *United States Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("[Claim construction] is not an obligatory exercise in redundancy.").



Defendant does not construe "flow path," instead repeating the term *verbatim* and then proceeding to arbitrarily add limitations to the claims. See *K-2 Corp. v. Salomon S.A.*, 191 F.3d 1356, 1364 (Fed. Cir. 1999) ("Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee."). Both constructions should be rejected for this reason alone, but there are other glaring defects as well.

The proposed construction would limit the "first flow path" to a "flow path *through* the body." The term "through" was carefully selected to require the first flow path to extend *completely* from the lower opening to the upper opening of the body. As shown above, neither the first flow path 28a nor

the second flow path 28*b* *completely connect* the lower opening 24 to the upper opening 22. Declaration of John Bearden (hereinafter, “Bearden Decl.”) ¶¶ 14-16. Rather, the flow paths 28*a* and 28*b* merely reside in the space separating the lower opening 24 and upper opening 22 without fully connecting them. *Id.* ¶ 16. Thus, Defendant’s proposal cannot be correct because it is inconsistent with the specification. It is worth noting that Defendant also attempts to expressly impart this “connecting” requirement into the phrase “[first / second] flow path *between* the upper opening and the lower opening in the body.” The proposed construction for “first flow path” here should also be rejected for the many other reasons discussed with respect to that phrase. *Infra* at 12-14.

The proposal for “first flow path” would also require that it “does *not* pass through the second flow region.” This language seeks to preclude flow from passing from the first flow path to the second flow path via vents in between the two flow paths, eliminating the critical self-cleaning feature of the claimed invention. *See Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1306 (Fed. Cir. 2011) (“To disavow claim scope, the specification must contain ‘expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.’”) (quoting *Epistar Corp. v. Int’l Trade Comm’n*, 566 F.3d 1321, 1335 (Fed. Cir. 2009)). Instead, the proposed construction would arguably require that fluid exits *only* out the top of the first flow path, and not out vents or openings between the two flow paths. However, in the disclosed embodiments, fluid is not required to flow from the bottom of the first flow region 28*a* to the top of the first flow region 28*a*. Figure 1A shows that upward flow can enter into the lower end of the first flow path 28*a* and then quickly split into the second flow path 28*b* via vents 33 in a lower half of the inner tube 26. Ex. 2 at 6:28-31. Thus, fluid flow in the first flow path can take a shorter route in the inner tube 26 to reach the second flow path 28*b* via the vents. The ability of fluid to vent from the first flow path to the second flow path is important, as this is the flow that allows the tool to self-clean collected solids from multiples areas of the second flow path 28*b*. The

proposed construction would read this self-cleaning feature out of the claims.

Additionally, inclusion of the word “through” in “through the [first / second] flow region” is improper. It is merely another attempt to require the flow paths to completely connect one thing to another, which is again inconsistent with the specification. Moreover, there is no basis requiring a “first flow region” or “second flow region” as part of either construction, as the inventor clearly knew how to recite those terms in the claims when desired. *See e.g.*, Ex. 3, Cl. 25; Ex. 4, Cl. 27.

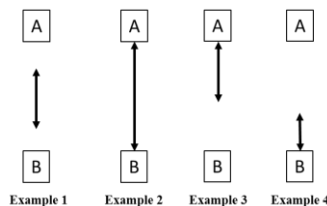
Lastly, the proposed construction here is inconsistent with Defendant’s proposal for the phrase “[first / second] flow path between.” For that phrase, Defendant agrees that “path” simply refers to a “route” but then inexplicably proposes an entirely different construction here.

B. [first/second] flow path between the upper opening and the lower opening in the body (‘435 Patent, Cl. 1; ‘151 Patent, Cls. 1, 24)

Forum	Defendant
a [first/second] flow path between the upper opening and the lower opening in the body, where the [first/second] flow path is not required to extend from the upper opening to the lower opening but can instead reside at any point separating the upper and lower opening	[first] / [second] route through the body connecting the upper opening and the lower opening

The parties’ dispute centers on the meaning of “between,” which is the same dispute previously resolved by Judge Rosenthal. Forum’s proposed construction was adopted *verbatim*. Ex. 6 at 23.

The term “between” is a commonly used term in everyday parlance; it is neither a term of art nor technical in nature.⁸ The following figures provide conceptual examples of an arrow “between” two points that fall within the ordinary meaning of between and that any juror would easily understand:



⁸ *See e.g.*, Ex. 9 at 1 (defining as “in the space that separates (two things or people)”); Ex. 9 at 6 (defining as “in or into the space that separates two places, people, or objects”); Ex. 9 at 19 (defining between as “in or along the space separating two objects or regions”).

As shown, “between” encompasses the situation where something resides in the space separating two points, regardless of whether it does (*e.g.*, example 2) or does not (examples 1, 3 and 4) “connect” the two points together.

The usage of “between” in the specification and claims is entirely consistent with this well-understood meaning. The Patents explain that “[t]he body 12 *defines* a throughbore 20.” Ex. 1 at 5:57-58. In other words, the entirety of the space in the body 12 is throughbore. The Patents then explains “inner tubular 26 **divides** the throughbore 20 into a first flow region 28*a* on the inside of the tubular and a second flow region 28*b* in an annular space 30 between the inner wall of the housing 16 and the inner tubular 26.” *Id.* 6:6-10. The Patents clearly identify elements 28*a* as a “first flow path” and element 28*b* as a “second flow path.” *Id.* at Abstract (“*First* (28*a*) and *second* (28*b*) *flow paths* are provided *between* the upper opening (22) and the lower opening (24) in the body....”); *see also Id.* at 10:12-16 (“...first flow path 28*a* and the second flow path 28*b*...”); Bearden Decl. ¶ 14. In Figures 1A-1C, neither of these two flow paths extends from the lower opening 24 to the upper opening 22. Bearden Decl. ¶¶ 15-16.

In addition to these clear teachings, nothing in the Patents refers to the area above or below the inner tube as either a “first flow path” or “second flow path.” *Id.* ¶ 15. In fact, the Patents state that the second flow path does *not* connect to the lower opening 24. *Id.* (citing Ex. 2 at 6:32-34 (“Here it should be noted that *there is no direct flow path from the lower opening 24 to the second flow region* which does not pass through the first flow region.”)). For these reasons, this phrase only needs construction to make clear “between” does not require “connecting” the upper and lower openings together.

Defendants’ proposed construction makes two material changes to the original claim language—it replaces the word “between” with the word “connecting” and requires the flow paths to go “through” the body. Under that proposal, the claim would require the first and second flow paths to

extend completely from the lower opening to the upper lower opening. In other words, Defendants proposal is intended to improperly limit *between* to “Example 2” above, to the exclusion of all others.

First and foremost, Defendant’s proposal is wrong because it would exclude every embodiment. The Patents clearly teach that neither the first flow path 28a nor the second flow path 28b “connects” the upper and lower openings. *see Vitronics Corp. v. Conceptronic Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996) (a construction that excludes preferred embodiments “is rarely, if ever, correct.”).

That “between” is broader than “connecting” is further confirmed by comparing statements in the specification. The specification states “[f]irst (28a) and second (28b) flow paths are provided *between* the upper opening (22)” and “there is no direct flow path *from* the lower opening 24 to the second flow region....” Ex. 1 at 6:37-38. This shows that the patentee knew how to use “from” to describe two things connected together (*e.g.*, example 2 above) and “between” when intending to convey that something resides in the space separating two points (*e.g.*, all four examples above).

Judge Rosenthal adopted Forum’s construction and rejected the position proposed by Defendant here, finding that “[a]s used in this ‘435 Patent claim, ‘between’ means an area or space within the distance separating the upper and lower opening.” Ex. 6 at 22-23. She explained that “[t]he second flow path need not be connected to the lower opening because fluid can still flow through the apparatus via the first flow path” and that, “[e]ven if the first flow path connects the upper and lower openings of the apparatus. . . , the Patent makes clear that the second flow path does not require this connection.” *Id.* at 23. For these reasons, Defendant’s proposal should be rejected.

C. [first /second] flow region (‘152 Patent, Cl. 25; ‘571 Patent, Cls. 27, 45, 50, 52)

Forum	Defendant
Plain and ordinary meaning	<i>first flow region</i> : the area inside of the tubular
To the extent the Court believes a construction may aid the jury, “[first / second] area through which fluids, and if present, solids flow”	<i>second flow region</i> : annular space between the inner wall of the outer tubular and the inner tubular

Defendant's proposal would rewrite the claims based on the preferred embodiments, importing several structural features (e.g., "inner tubular," "annular space") into terms consisting of commonly used words. However, the Patents use the term "flow region" to simply refer to an area through which flow occurs.⁹ In fact, Defendant agrees that "region" means "area," at least with respect to "first flow region." In reference to the preferred embodiments, the Patents teach that "the inner tubular 26 divides the throughbore 20 into a *first flow region 28a* on the inside of the tubular and a *second flow region 28b* in an annular space 30 between the inner wall of the housing 16 and the inner tubular 26." Ex. 2 at 6:2-5. Thus, the Patents simply use "flow regions" to refer to two distinct *areas* of the tool through which fluid and/or solids flows. No construction is necessary.

Defendant's proposal would require the first flow region to be inside an inner tubular and the second flow region to be in the annular space around the inner tubular. The Patents are not so limited, as they expressly contemplate different arrangements of the flow regions. Ex. 2 at 10:36-42. For example, claim 50 of the '571 Patent would encompass an embodiment of the invention where solids are collected in an inner tubular and fluid is vented into the inner tubular from the annular space. In the context of that claim, the annular space would then provide a first flow region and the inner tube would provide a second flow region. Defendant's proposal would exclude this variation of the invention by linking structure from the preferred embodiments to these terms.

Claim differentiation further disproves Defendant's proposal. Claim 25 of the '152 Patent recites "the inner tubular comprising a wall that separates a first flow region *on the inside of the inner tubular* from a second flow region *in an annular space*." There would be no need for the claims to expressly add these structural requirements if they were inherently present. Claim 50 of the '571 Patent

⁹ See e.g., Ex. 10 at 1 (defining "region" as "an area or division..."); Ex. 10 at 5 ("a region is an area," "a region is any space that is distinct from another area"); Ex. 10 at 9 (showing "area" is synonym for "region").

further proves this point, as it recites the disputed terms without any further structural limitations.

Lastly, Defendant’s proposed constructions violates the “well-established” claim construction principle that “claim terms are to be construed consistently throughout a patent.” *Phil-Insul Corp. v. Airlite Plastics Co.*, 854 F.3d 1344, 1359 (Fed. Cir. 2017). On one hand Defendant proposes the “first flow region” is an “area,” while on the other proposing that the “second flow region” is an “annular space.” These are inconsistent interpretations of the same claim term.

D. flow diverter (All Patents, *passim*)

Forum	Defendant
Plain and ordinary meaning	a valve or other mechanical device at the top of the first flow region that changes position to modify the flow paths through the body

The proposed construction would limit “flow diverter” to a mechanical device that “changes position to modify the flow paths through the body.” In other words, the construction would require “flow diverter” to having moving parts that cause a change in the direction of flow. If adopted, this construction would exclude a fixed flow diverter cap (i.e., a flow diverter with no moving parts). There is no legitimate basis for excluding these types of flow diverters, which are one of the most basic and well-known types of flow diverter in the industry.

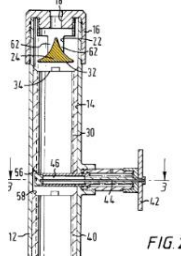
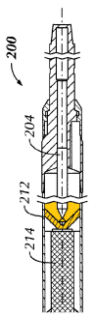
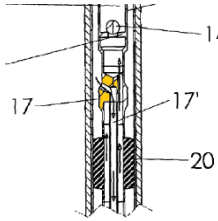
A person having ordinary skill in the art would understand “flow diverter” to refer to a class of well-known and commonly used mechanical (*i.e.*, machined)¹⁰ devices that divert flow, including diverter valves and fixed diverters without any moving parts that rely on their size, shape and/or placement to diverter flow. Bearden Decl. ¶ 18. This is consistent with the expert testimony offered in the 2016 litigation, including by the infringer’s own expert Dr. Gary Wooley, who testified that the: (1) term flow diverter has “been around the oil industry for a long time . . . And in a variety of ways;”

¹⁰ See Ex. 21 at 4 (defining “mechanical” as “**made**, performed or operated **by** or as if **a machine or machinery**”); Ex. 21 at 6 (defining as “operated or **produced by** a mechanism or **machine**”) (“**made** or operated **by a machine**”); Ex. 21 at 12 (“working or **produced by machines or machinery**”).

(2) that “there’s lots of flow diverters in [the] oilfield;” (3) that in the context of downhole pumps he has seen that term used to connote “valves and things like that;” and (4) that it is “not an uncommon term. It’s used in many different applications and many different types of devices.” Ex. 11 at 115:23-117:11. Dr. Wooley also testified that a simple “Y junction” (*i.e.*, a fixed pipe that splits flow into two paths) would be considered a flow diverter. *Id.* at 117:1-11. On direct examination he also testified that “there are a number of different *types* of flow diverters that are *common* in the oil and gas industry,” including Y-junctions. Ex. 12 at 113:3-17. Thus, both Mr. Bearden and a former infringer’s expert agree that *flow diverter* is a broad term that encompasses mechanical diverters with and without moving parts. Bearden Decl. ¶ 19. This is consistent with the expected testimony of Defendant’s witness that flow diverter “mean[s] *many things* in the ... industry.” Ex. 16 at 3-4.

Given these facts, it is unsurprising that Judge Rosenthal rejected ESPCT’s position that “flow diverter” is a means-plus-function term or that it should be limited to a valve. Judge Rosenthal held that “flow diverter” refers to “a mechanical diverter that one of ordinary skill in the art would understand to refer to a class of well-known and commonly used devices that divert flow.” Ex. 6 at 30. She noted that “[e]xperts on both sides noted common use and understanding of the term in the industry,” and found that “flow diverter” in the context of the Patents does “*not refer to non-mechanical* diverters, such as centrifugal force, electromagnetic force, or chemical agents,” but instead “*covers a broad class of mechanical structures* that perform the function of diverting flow.” *Id.* at 28-30. Judge Rosenthal found that “[t]he specification does disclose a valve as a flow diverter, but does *not* limit a diverter to a valve.” Ex. 6 at 28-29 (citing Ex. 1 at 3:6 (“*Preferably*, the flow diverter comprises a valve.”) (emphasis in original)). Thus, a “flow diverter” encompasses fixed flow diverters, which have no moving parts and instead rely solely on their size, shape, and placement to divert flow. This is precisely the type of flow diverter used by ESPCT and by Defendant.

This understanding of “flow diverter” is consistent with the prior art, which shows that the use of fixed **flow diverters** with no moving parts located above a tubular was well-known:

U.S. Patent No. 6,056,053	U.S. Pat. Pub. 2011/0024119	U.S. Patent No. 8,997,870
<p>Fluid, e.g. displacement fluid, is flowable through the bore 18 of the cap 16 to enter into a bore 22 of a fluid diverter 20. The fluid contacts a diverter body 24 which directs the fluid away from the center of a top spool 30 and into spaces 26 between ribs 28 of the top spool 30 (see FIG.3) and the interior surface of the container. Ex. 13 at 7:55-65.</p>  <p>FIG. 2</p>	<p>Referring back to FIGS. 2A and 2B, the debris sub 202 is coupled to a lower end of the ported Sub 203 and houses a suction tube 204, a flow diverter 212, and the screen 214 Referring also to FIG. 5, the suction tube 204 is configured to receive a stream of fluid and debris from the wellbore and directs the stream through the flow diverter 212. Ex. 14 ¶ [0042].</p> 	<p>The annulus 6 is open to upward oil and gas flow to the surface and downward water flow to a water injection level indicated by arrows 16 via a flow diverter or by-pass 17 and a by-pass water flow conduit 17' for discharging water into a level of the geological formation at the bottom of the casing 2. Ex. 15 at 5:4-7.</p> 

See Bearden Decl. ¶¶ 20-23 (explaining these references disclose well-known fixed flow diverters).

The principle of claim differentiation further confirms that “flow diverter” includes mechanical diverters without moving parts. See *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006) (claim differentiation “refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim”). For instance, claim 20 of the ‘151 Patent further limits the “flow diverter” of claim 1 as follows: “wherein at least part of the flow diverter *is movable*.” In other words, the “flow diverter” in claim 1 may or may not have moving parts, whereas claim 20 requires the flow diverter to have at least one moving part (e.g., like a valve). Defendant’s “construction is thus contrary to the well-established rule that claims are interpreted with an eye toward giving effect to all terms in the claim” as it would render claim 20 meaningless. See *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012).

Defendant’s proposal should also be rejected because it improperly imports other limitations into the claims in a wholesale fashion. For example, the proposal would require the “flow diverter” to

be “at the top of the first flow region.” Yet, many of the claims containing the term “flow diverter” do not even recite a “flow region,” so inclusion of the term “the first flow region” would render many of the claims nonsensical at worst and confusing at best. The inventor clearly knew how to require “flow regions” in the claims when desired. *See e.g.*, Ex. 3, Cl. 25; Ex. 4, Cl. 27. Moreover, there are no words of manifest exclusion that *require* the “flow diverter” to be at the top of the first flow region.¹¹

Lastly, Defendant would require the “flow diverter” to “modify the flow paths through the body.” However, in the embodiments the valves do not “modify the flow paths.” While the valve 34 determines whether fluid can flow into the very top of the first flow path 28a, neither the first nor second flow path is “modified” by its operation. Ex. 2 at 2:66-3:2 (“[V]alve may be operable to *close* the first flow path *against flow in a downward direction*.”). The valve merely prevents flow from entering the top of the first flow path; it has no effect on the physical route of either flow path.

E. a flow diverter arranged to direct downward flow through the body towards the second flow path and away from the first flow path (‘435 Patent, Cl. 1)

Forum	Defendant
Plain and ordinary meaning	a valve or other mechanical device at the top of the first flow region that is operable to be moved so that downward flow through the body is prevented from flowing to the first flow path

For the reasons discussed above, the term “flow diverter” needs no construction and Defendant’s proposal for that term should be rejected. *Supra* at 16-19. The notion of “operability” should also be rejected for the same reasons, as it is merely a different way of trying to limit the claim to more complex flow diverters with moving parts. With respect to the remainder of the proposed phrase, no construction is required, as it consists of commonly used words that a POSITA and jury would easily understand. The Patents provide clear, non-limiting examples of a flow diverter “arranged

¹¹ The proposed construction would exclude from the scope of the claims a flow diverter placed at a point slightly below the top of the inner tube. While such a design may not be as effective as that of the disclosed embodiments, the primary benefits of the invention would still be realized.

to direct downward flow through the body towards the second flow path and away from the first flow path” consistent with this understanding. *See e.g.*, Ex. 2 at 6:41-65.

The proposed construction should also be rejected because it is inconsistent with the disclosed embodiments. It would require that the flow diverter “prevent” downward flow “from flowing to the first flow path.” Yet, even when the valve 34 is closed in the disclosed embodiments fluid can still flow into the first flow path 28*a* by passing through the second flow path 28*b* and through the vents 33 in the inner tubular 26. Thus, flow is not “prevented” from moving into the first flow path by the valve.

F. diverting / divert / been diverted (‘151 Patent, Cls. 34, 37; ‘152 Patent, Cl. 29)

Forum	Defendant
Plain and ordinary meaning	a flow diverter changing the path a fluid or solid would otherwise take

The proposed construction would impart the *structural* requirement of a “flow diverter” into this simple and widely understood method *step* even though the term “flow diverter” is not recited. Setting aside the issue with Defendant’s construction of “flow diverter,” the proposal should be rejected for several additional reasons.

For one, the Patents use the term “divert” in accordance with its well-known and commonly understood meaning—*i.e.*, to cause something to change direction.¹² The Patents teach that downward moving flow can be “diverted” from a first flow path 28*a* to a second flow path 28*b*. *See* Ex. 2 at 6:52-55 (“the fluid is *diverted* into the second flow region 28*b*.... [S]ands entrained in the fluid are also *diverted* into the second flow region 28*b*.”); *Id.* at 6:62-64 (“Solid particles flowing in the fluid are *diverted* away from the first flow region 28*a*....”); *Id.* at 9:22-23 (“Fluids and/or entrained solids and sand flow ... are *diverted* to the second flow region 28*b*.”). Thus, the term “divert” in the specification

¹² *See e.g.*, Ex. 17 at 1 (defining “divert” as “to cause something or someone to change direction”); Ex. 17 at 13 (defining as “to turn from one course or use to another”); Ex. 17 at 23 (defining as “to make somebody/something change direction”); Ex. 17 at 26 (defining as “to make something move or travel in a different direction”).

simply refers to the change of direction of downward flow. Construction here involves no “more than the application of the widely accepted meaning of commonly understood words” and no construction is necessary. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005).

The proposed construction, if adopted, would improperly import a limitation into the claims based solely on the preferred embodiments. *See Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (“[A] particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.”). Of course, there are exceptions to this general rule, such as when the patentee acts as his or her own lexicographer or when the patentee disavows or disclaims the full scope of a claim term in the specification. *Phillips*, 415 F.3d at 1316. Neither exception exists here. *See Woodrow Woods & Marine Exhaust Sys., Inc. v. Deangelo Marine Exhaust, Inc.*, 692 F.3d 1272, 1283 (Fed. Cir. 2012) (“The specification need not describe every embodiment of the claimed invention ... and the claims should not be confined to the disclosed embodiments—even when the specification discloses only one embodiment....”). Therefore, importing this structural requirement into the claims would be improper. *See Epcon Gas Sys. Inc. v. Bauer Compressors, Inc.*, 279 F.3d 1022, 1032 (Fed. Cir. 2020) (“district court improperly imported language from the specification into the claim” by importing structural limitations into the step of “venting” where “[t]he method ... does not mention structure by which the ‘venting’ is to be performed”); *see also DSW, Inc. v. Shoe Pavilion, Inc.*, 537 F.3d 1342, 1348 (Fed. Cir. 2008) (holding “it was improper for the trial court to import limitations from the apparatus and system claims into the method claims”); *Polycom, Inc. v. Codian Ltd.*, 2007 U.S. Dist. LEXIS 97892, at *68 (E.D. Tex. Oct. 19, 2007) (“[T]he claim is a method claim and the claim language does not require any particular structure.... Therefore, the Court will not import a structural requirement into the method claim.”).

The proposed construction is also contradicted by the principle of claim differentiation. For

example, claim 29 of the ‘152 Patent recites “A method of clearing sand from a downhole production apparatus comprising a body, an inner tubular in the body, a *flow diverter* ... the induced flow in the annular space carries away solid particles that have been *diverted* into, and collected by, a lower half of the annular space.” If, as Defendant proposes, the term “divert” requires a “flow diverter” then there would be no need to separately recite a “flow diverter” in the same method claim. Defendant’s proposed construction would render the separate recitation of “flow diverter” in claim 29 meaningless. Indeed, the fact that most claims recite a “flow diverter” and others do not, further demonstrates that the patentee understood how to require that structure when desired.

The proposed construction would also arguably convert these claims into mixed apparatus-method claims. The proposed construction does not recite “changing the path by a flow diverter,” but instead wholesale imports the structural apparatus of a “flow diverter.” This proposal arguably results in the claim “[r]eciting both an apparatus and a method of using that apparatus” which “renders a patent claim indefinite.” *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005).

Lastly, Defendant’s proposal would make the claims at issue confusing, because some do not even recite a “path.” For example, claim 29 of the ‘152 Patent does not recite a “[first / second] flow path,” but instead defines the invention in terms of an “inner tube” and “annular space.” Thus, reference to “the path” injects ambiguity into the claims.

G. directing downward flow of fluid and/or entrained solids to a second flow path in the body (‘435 Patent, Cl. 18)

Forum	Defendant
Plain and ordinary meaning	a flow diverter at the top of the inner tube that is operable to move when the pump ceases operation so that downward flow through the body flows [to] [<i>sic</i>] a second flow path instead of the first flow path

This proposal rewrites the claim by requiring numerous structures recited nowhere in the claim, including a “flow diverter” that is “operable to move” located “at the top of the inner tube.” However,

this phrase needs no construction because the Patents use the term “directing” in a manner consistent with its common and widely accepted meaning, which is obviously broader than the proposed construction.¹³ Defendant’s attempt to import a “flow diverter” and the notion of “operability” into this method claim step should also be rejected for all of the reasons discussed with respect to the disputed term “divert” and “flow diverter.” *Supra* Sections IV.D-F.

H. wall of the tubular (‘571 Patent, Cl. 27) / an inner tubular wall separating the first flow region from the second flow region (‘571 Patent, Cl. 50)

Forum	Defendant
Plain and ordinary meaning	the tubular comprises a solid surface / the solid surface of the inner tubular separating the first flow region from the second flow region

The parties’ dispute centers on the meaning of “wall” for both of these terms. “Wall” has a well-known and widely accepted meaning as a physical barrier that separates one thing from another.¹⁴ In the context of the disclosed embodiments, the barrier is the side of the inner tubular 26 that divides the throughbore into the first flow [region / path] 28a and the second flow [region / path 28b]. Given that the specification uses the term “wall” in accordance with its common meaning, and that the jury will have no difficulty understanding this term, no construction is necessary.

The proposed construction should be rejected because it would require the “wall” to have a “solid surface.” This runs contrary to the disclosed embodiments, because “solid” is defined in many dictionaries to *preclude* holes or openings.¹⁵ Yet, every single depicted embodiment has multiple vents

¹³ See e.g., Ex. 18 at (defining “directing” as “to aim something in a particular direction or at particular people”); Ex. 18 at 20 (defining as “to aim something at a particular person or thing”); Ex. 18 at 23 (defining “direct” as “to cause to move in a certain direction or toward a certain object”).

¹⁴ See Ex. 19 at 3 (defining “wall” as “a vertical structure that divides or encloses something”); Ex. 19 at 17 (defining as “the side of something with an empty space inside, for example a box or a pipe”); Ex. 19 at 25 (defining as “something that separates one thing from another...”).

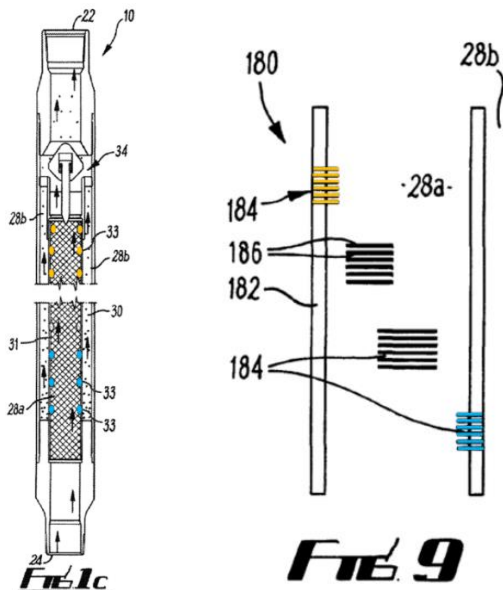
¹⁵ See e.g., Ex. 20 at 1 (defining “solid” “as **“without openings or breaks; a solid wall”**”); Ex. 20 at 9 (defining as “**not interrupted by a break or opening** // a solid wall”); Ex. 20 at 23 (defining as “completely hard or firm all through an object, or **without any spaces or holes**”); Ex. 20 at 37 (defining as “**[n]ot hollow or containing spaces or gaps**.”); Ex. 20 at 43 (defining as “solid object or mass does **not have** a space inside it, or **holes or gaps in it**”).

or holes in the inner tubular 26 wall. As such, this proposal makes no sense in the context of the Patents. Additionally, none of the Patents mention or discuss a “solid surface,” or provide any detail or discussion with respect to the structural characteristics (*e.g.*, thickness, material, frame) of the inner tubular wall. The word “solid” is only used in the Patents in reference to “solid *particles*,” not walls. Thus, there is no basis for imparting the nebulous notion of a “solid surface.” It adds ambiguity. For instance, is a wall “solid” if it has many vents or openings?

I. at least one further vent in an upper half of the inner tubular (‘152 Patent, Cl. 29)

Forum	Defendant
Plain and ordinary meaning	Indefinite

The relevant claim recites “one or more vents arranged between a lower half of a side wall of the inner tubular and a lower half of the annular space.” In reference to the embodiments of Figure 1A and Figure 9 (annotated below), this could include any of the **vents** (33) in a lower half of inner tubular (26) or the vent **slots** (186) in inner tubular (182). The claim also recites “at least one further vent in an upper half of the inner tubular.” Of course, this could refer to any of the **vents** (33) in the upper half of the inner tubular (26) or the vent **slots** (186) in the upper half of the inner tubular (182). A POSITA would have no difficulty discerning the scope of this claim. Bearden Decl. ¶¶ 34-35.



Forum suspects Defendant may argue that this phrase is indefinite by arguing that “further” connotes some sort of unknowable spatial relationship. However, a POSITA would understand that the term “further” simply means “additional.” Bearden Decl. ¶ 36. The Patents routinely use the term “further” to mean “additional.” *See* Ex. 2 at 8:19-20 (“there is shown a *further* alternative embodiment of the invention”); 9:50-51 (“and in *further* alternatives, a wire mesh screen or filter may be provided over the slots”); 9:53 (“FIG. 10 shows a *further* alternative embodiment”). Other claims also use the term “further” to simply mean “additional;” none use the term to connote a spatial relationship. *See e.g., id.* at cl. 1 (“*further* configured to be installed above a downhole pump”), cl. 34 (“The method as claimed in claim 34, *further* comprising”); Ex. 3 at cl. 8 (“*further* assisting with carrying collected solids away”); Ex. 4 at cl. 50 (“the induced flow *further* causing collected solid particles”). For these reasons, the disputed phrase is definite.

J. relieve back pressure (‘152 Patent, Cls. 3, 22)

Forum	Defendant
Plain and ordinary meaning	Indefinite
To the extent the Court believes a construction may aid the jury, “reduce pressure that restricts upward flow”	

There is nothing indefinite about “relieving back pressure.” The relevant claims recite:

The apparatus of [claim 1 / claim 20], further comprising at least one further vent in an upward section of a wall of the inner tubular, wherein the at least one further vent helps *relieve back pressure* caused at least in part by solid particles collected in the annular space.

The specification teaches that solids collect in the second flow path. Ex. 2 at 6:57-65. These collected solids will stack and plug at least some of the vents 33 in the inner tubular 26. *Id.* at Fig. 2 (showing solids building in second flow path 28*b*). When this blockage occurs, the amount of fluid that can flow through the tool 10 is reduced or restricted. Bearden Decl. ¶¶ 25-26. The greater the restriction, the more back pressure builds up in the system. *Id.* ¶ 26. This increased back pressure is a result of the pump reducing its flowrate but increasing output pressure. *Id.* In other words, the pump will push a

reduced volume of fluid through less available flow space at a higher pressure. *Id.* By placing at least one vent in an upper section of the inner tubular, upward flow can still flow from the first flow path to the second flow path even when the vents beneath are plugged with solids. *Id.* ¶ 27. Thus, a POSITA would understand that placement of this additional vent relieves back pressure that would otherwise exist if the lower vents are blocked and no additional vent existed. *Id.* The Patents specifically discuss this concept of relieving back pressure. *Id.* (citing Ex. 2 at 7:3-7; *Id.* at 7:22-24). In view of the above, Defendant's position that his term is indefinite should be rejected. To the extent the Court believes that clarification may assist the jury, Forum has proposed a construction that merely clarifies the ordinary meaning of this phrase, which is consistent with the well-known meaning of "back pressure."¹⁶

K. if fluid cannot flow ('152 Patent, Cls. 2, 4, 21, 24, 27, 28; '571 Patent, Cls. 2, 4, 15, 17)

Forum	Defendant
Plain and ordinary meaning	Indefinite

This phrase relates to the concept of "relieving back pressure" discussed above and is definite for similar reasons. All claims with the phrase "if fluid cannot flow" impart similar limitations, namely that there is at least one opening/vent/passageway that is placed higher in the claimed tool than a previously recited opening(s)/vent(s)/passageway(s). This higher opening/vent/passageway allows upward flow to exit the opening in the top of the tool even if the flow cannot pass through a previously recited openings/vents/passageways due to blockage by solids.

Claim 4 of the '152 Patent provides one example of this:

The apparatus of claim 1, further comprising at least one opening in the flow diverter, wherein the at least one opening permits fluid flowing upwardly in the inner tubular to reach the upper opening in the body even *if fluid cannot flow* upward through the one or more vents in the wall of the inner tubular due to an accumulation of collected solid particles.

¹⁶ See e.g., Ex. 22 at 1 (IAD Lexicon defining "backpressure" as "pressure resulting from restrictions to fluid flow downstream"); Ex. 22 at 7 (Schlumberger Oilfield Glossary defining as "pressure within a system caused by fluid friction or an induced resistance to flow through the system"); Ex. 22 at 9 (defining as "opposition to flow of a liquid or gas due to friction, inertia, gravity, or other cause").

In other words, claim 4 further requires the “flow diverter” from claim 1 to have at least one opening, which allows upward flow to reach the upper opening in the body even if all of the inner tubular vents are blocked by sand. Bearden Decl. ¶¶ 30-31. This ensures that even if upward flow cannot pass from the inner tubular to the annular space because the vents are blocked by collected sand, the flow can still escape out the opening in the flow diverter and exit the tool. This helps relieve back pressure. *Id.*

Claim 27 of the ‘152 Patent also provides an example of the definite nature of this claim term:

The apparatus of claim 25, comprising at least one further vent in an upward section of a wall of the inner tubular, wherein the at least one further vent permits fluid flowing upwardly in the inner tubular to reach the upper production string tubing even *if fluid cannot flow* upward through the one or more vents in the lower part of the wall of the inner tubular due to an accumulation of collected solid particles.

In other words, this claim further limits claim 25 by requiring an additional vent in an upper section of the inner tubular so that upward flow can still exit the tool even if the one or more vents in a lower part of the inner tubular are blocked by solid particles. *Id.* ¶ 32. In view of the above, the phrase “if fluid cannot flow” is definite; a POSITA would understand it to simply refer to the inability of fluid to flow through the vent/opening/passageway due to sand blockage. *Id.*

L. the filter comprises one or more vents (‘151 Patent, Cl. 25)

Forum	Defendant
Plain and ordinary meaning	holes in a tubular wall having a wire mesh or screen over the holes on an outer surface of the wall. Alternatively, indefinite and/or lack of written description.

The proposed construction would improperly limit this phrase to a single embodiment disclosed in the specification, where a screen or mesh is overlaid over vents in a tubular wall. However, the Patents use the terms “filter” and “vents” consistent with their common, well-understood meaning

and so limiting the claims in this manner is improper.¹⁷ Bearden Decl. ¶ 38.

The Patents provide several examples of filters and vents. *Id.* ¶ 39. In reference to Figure 1, the specification teaches that the inner tube 26 may have vents 33 overlaid with a mesh or screen 31 that “functions to screen or filter solid particles such as sands from the fluid.” Ex. 2 at 6:57-58. Thus, in one embodiment a mesh or screen overlays the vents. However, the specification also teaches that a mesh or screen is not necessary, because vents “may be shaped and/or sized to limit the passage of sand and/or solid particles therethrough.” *Id.* at 3:31-33. For example, the specification provides an example of slots 184 that are “finely cut in the wall 182” of the inner tubular, thereby acting as a filter. *Id.* at 9:42-46. Of course, nothing in the specification precludes the use of only a mesh or screen between the [first / second] flow paths 28*a* and 28*b*, in which case the mesh or screen filters downward flowing solids and vents upward flowing fluid into the second flow path 28*b*.

The phrase at issue is set forth in claim 25 of the ‘152 Patent, which depends from independent Claim 24. Claim 24 recites “a *filter* between a lower part of the second flow path and a lower part of the first flow path.” Thus, the “filter” in the independent claim could be, among other things: (1) a screen or mesh overlaying larger vents; (2) vents that are sized and/or shaped to filter; (3) the combination of both (1) and (2) (for improved filtering); or (4) only a screen or mesh between the first flow path and second flow path, in which case the screen both filters downward flowing solids from moving into the first flow path and vents upward flowing fluid into the second flow path. Bearden Decl. ¶ 40. Claim 25 recites “wherein *the filter comprises one or more vents* arranged between a lower

¹⁷ See e.g., Ex. 23 at 2 (defining “vent” as “an opening for the escape of a gas or liquid or for the relief of pressure”); Ex. 23 at 14 (defining “vent” as “an opening that allows air, gas or liquid to pass out of or into a room, building, container, etc.”); Ex. 24 at 1 (defining “filter” as “any of several types of equipment or devices for removing solids from liquids or gases, or for removing particular types of light”); Ex. 24 at 14 (defining “filter” as “a device that is used to remove something unwanted from a liquid or gas that passes through it”) Ex. 24 at 16 (defining “filter” as “a porous article or mass (as of paper or sand) through which a gas or liquid is passed to separate matter in suspension”).

part of the first flow path and the second flow path.” In other words, claim 25 further limits the “filter” to, for example, vents sized and/or shaped to filter (2 above) or only a screen or mesh that separates the first flow path from the second flow path (4 above). *Id.* ¶ 41.

Defendant’s proposal should be rejected for many reasons. For one, Defendant replaces the word *vent* with “holes.” But obviously not all “holes” are “vents,” as a vent is merely one type of hole. Defendant’s proposal also requires the holes to be in a “tubular wall,” but nothing in the Patents limits the inner structure to a tubular. While the use of an inner tubular is disclosed in the preferred embodiments, the use of a hollow hexagonal or square shaped inner structure are not precluded. The requirement of a “wall” should also be rejected, as Defendant has already demonstrated it will attempt to leverage the nebulous nature of “solid surface” as part of that term.

Defendant would also require a “wire mesh or screen over the hole [in a tubular wall].” As explained above, nothing precludes the use of a mesh or screen that *both* filters solids and vents fluids. Thus, the claim cannot be limited to a mesh or screen “over” vents or holes. In fact, dependent claim 26 (*not* claim 25) further limits claim 24 to “wherein the filter comprises a **screen or mesh disposed over one or more vents**.” If the inventor had intended to impart this requirement in claim 25, he clearly knew how. There is also nothing in the specification that limits the mesh or screen to “wire.” Obviously, other materials can be used for a mesh or filter.

Defendant would require the “wire mesh or screen” be on the “outer surface” of the inner tubular wall. Yet, nothing in the specification precludes the mesh from being placed over an inner surface. This proposed limitation appears to be designed to create a non-infringement or design-around by excluding from the scope of the claims a filter placed over an inner surface of a tubular.

M. the first passageway positioned adjacent a first end of the wall and the second passageway positioned adjacent an end opposite of the first end (‘571 Patent, Cls. 4, 17)

Forum	Defendant
<p>Plain and ordinary meaning</p> <p>To the extent the Court believes a construction may aid the jury, “the first passageway adjoining a first end of the wall and the second passageway adjoining an end opposite of the first end”</p>	<p>a first vent in the wall at an end of the wall and a second vent at an opposite end of the same wall. In the alternative, indefinite and/or lack of written description</p>

The Parties apparently dispute three issues (1) whether the passageway is required to be “in the wall;” (2) the location of passageway (“adjoining” vs “at”); and (3) whether the passageways must be in the “same” wall. Defendant’s proposal is wrong on all fronts.

First, nothing in the plain claim language requires the claimed passageways to be “in the wall.” In reference to Figure 1A, the “first passageway” could be the opening in the top of the inner tubular 26 at the flow diverter 34, which is obviously adjacent the upper end of the inner tubular but not “in the wall” of the inner tubular as Defendant would require. Second, Defendant’s proposal that the passageways must be “at” an end of the wall does not capture the full meaning of “adjacent,” which simply means adjoining (i.e., next to or joined with).¹⁸ To the extent any construction is necessary, it is only needed to clarify the meaning of “adjacent.” Third, nothing in the plain claim language or specification requires that the passageways must be in the “same” wall. In reference to Figure 1A, one passageway could be the passageway through the diverter at the top of the inner tubular, while the other could be the lowest vent 33 in the inner tubular 26. In other words, the lower passageway would be in the wall of the inner tubular while the upper passageway would not. For these reasons, Defendant’s proposal should be rejected. There is no basis for excluding these disclosed embodiments.

V. Conclusion

For the reasons above, Forum requests that the Court adopt its proposed constructions for all disputed terms and reject Defendant’s improper attempts to improperly narrow the claims.

¹⁸ Ex. 25 at 1 (defining “adjacent” as “adjoining”); Ex. 25 at 2 (same); Ex. 26 at 2 (defining “adjoining” as “next to or joined with”); Ex. 26 at 5 (same).

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Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to the Federal Rules of Civil Procedure and the Local Rules of the Southern District of Texas, I certify that a copy of the foregoing document has been served on all counsel of record via the Court's CM/ECF system on August 28, 2020.

/s/ Sherri Brunner

Sherri Brunner